



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,783	12/13/2001	Abdo Esmail Abdo	IBM / 156	6115

7590 05/12/2005

Thomas W. Humphrey
Wood, Herron & Evans, L.L.P.
2700 Carew Tower
441 Vine Street
Cincinnati, OH 45202-2917

EXAMINER

ALI, MOHAMMAD

ART UNIT	PAPER NUMBER
----------	--------------

2167

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/017,783	Applicant(s) ABDO ET AL.	
	Examiner Mohammad Ali	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 1-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

A

DETAILED ACTION

1. This communication is in response to the Election filed on 02/25/2005.

Applicant's Elect Group I (claims 1-10) without traverse.

The application has been examined and claims 1-24 are pending in this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "A method" in claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

MPEP 2106 IV.B.2.(b)

A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical

Art Unit: 2167

transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application within the technological arts.

Claims 1-6, in view of the above-cited MPEP sections, are not statutory because they merely recite a number of computing steps without producing any tangible result and/or being limited to a practical application within the technological arts. The use of a computer has not been indicated.

These claim do not indicate use of hardware on which the software runs to perform the steps recited in the body of the claim. Software or program can be stored on a medium and/or executed by a computer. In other words the software must be computer-readable. The use of a computer is not evident in the claim. MPEP 2106.IV.B.1(a) refers to "computer-readable" medium with computer program encoded on it."

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chadha et al. ('Chadha' hereinafter), US Patent 5,706,495 in view of Jones et al. ('Jones' hereinafter), US Patent 5,689,698 and further in view of Chadha et al. (Chadha ('46) hereinafter), US Patent 6,032,146.

With respect to claim 1,

Chadha discloses a method for revalidating previously generated statistics for a query directed to one or more attributes of a relation (see 7, lines 43-50, Fig. 3), comprising

identifying in said query a selection criterion on said one or more attributes of said relation (see col. 4, lines 45-46 et seq), and

revalidating a prior statistic generated for a prior different selection criterion on the same one or more attributes of said relation, based upon a measure of entropy of said one or more attributes of said relation (see col. 7, lines 11-20, Fig. 2 et seq).

Chadha does not explicitly indicate the claimed revalidating.

Jones discloses the claimed revalidating (request is revalidated, and a query plan will be formulate. If receiver client access is authorized, the MOL received at the

Art Unit: 2167

receiver client is transformed into a second MOL, and transferred to the receiver client, see col. 15, lines 10-15, Fig. 40, Jones).

It would have been obvious to one ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references, because the revalidating of Jones teaching would have allowed Chadha's system to optimize the query plan as suggested by Jones at col. 7, lines 52-57. Revalidating as taught by Jones improves to access the object in an object server in response to the database query, see col. 2, lines 33-35, Jones.

Chadha and Jones does not explicitly indicate the claimed entropy.

Chadha ('46) discloses the claimed entropy (rules used for data mining will appreciate that the association measures can be Chi-square, entropy, see col. 5, lines 14-15).

It would have been obvious to one ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references, because the revalidating of Jones teachings and entropy of Chadha ('46) teachings would have allowed Chadha's system to optimize the query plan as suggested by Jones at col. 7, lines 52-57 and dimension reduction for data mining without the need for a domain expert as suggested by Chadha ('46) at col. 2, lines 67 to col. 3, lines 1).

As to claim 2,

Chadha teaches wherein said prior statistic is revalidated if a measure of entropy of said one or more attributes of said relation is less than a predetermined threshold ('input') value (see col. 7, lines 11-18 et seq).

As to claim 3,

Chadha teaches further comprising generating a measure for the entropy of said one or more attributes of said relation, by the steps of computing frequencies of different values for the one or more attributes in tuples of the relation (see col. 14, lines 2-15 et seq), and

combining the measured frequencies into a measure of the entropy of the attributes (see col. 13, lines 28-35).

As to claim 4,

Chadha teaches wherein generating a measure for the entropy of said one or more attributes of said relation further comprises collecting a sample of tuples of the relation, wherein frequencies of different values are computed for tuples in the sample (see col. 11, lines 37-45 et seq).

As to claim 5,

Chadha teaches wherein combining the measured frequencies comprises determining a number of distinct values for the one or more attributes, and converting the computed frequencies to probabilities by dividing the frequencies by number of distinct values (see col. 11, lines 37-45 and col. 9, lines 55-61 et seq).

As to claim 6,

Chadha teaches wherein combining the measured frequencies further comprises forming a weighted sum of the computed probabilities (see col. 11, lines 37-45 and col. 9, lines 55-61 et seq).

With respect to claim 7,

Chadha discloses a computer system implementing a relational database system and evaluating queries directed to said relational database (see 7, lines 43-50 and col. 9, lines 22-30, Fig. 3), comprising

storage for said relational database, including a relation having a plurality of tuples including values for a plurality of attributes (see col. 4, lines 45-46 et seq), and computing circuitry performing query optimization and query execution upon said relational database (see col. 3, lines 27-31), said query optimization including generating statistics for a query directed to one or more attributes of said relation, by identifying in said query a selection criterion on said one or more attributes of said relation (see 7, lines 43-50 and col. 9, lines 22-30, Fig. 3), by revalidating a prior statistic generated for a prior different selection criterion on the same one or more attributes of said relation, based upon a measure of entropy of said one or more attributes of said relation (see col. 7, lines 11-20, Fig. 2 et seq).

Chadha does not explicitly indicate the claimed revalidating.

Jones discloses the claimed revalidating (request is revalidated, and a query plan will be formulate. If receiver client access is authorized, the MOL received at the receiver client is transformed into a second MOL, and transferred to the receiver client, see col. 15, lines 10-15, Fig. 40, Jones).

It would have been obvious to one ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references, because the revalidating of Jones teaching would have allowed Chadha's system to optimize the query plan as suggested by Jones at col. 7, lines 52-57. Revalidating as taught by

Jones improves to access the object in an object server in response to the database query, see col. 2, lines 33-35, Jones.

Chadha and Jones does not explicitly indicate the claimed entropy.

Chadha ('46) discloses the claimed entropy (rules used for data mining will appreciate that the association measures can be Chi-square, entropy, see col. 5, lines 14-15).

It would have been obvious to one ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references, because the revalidating of Jones teachings and entropy of Chadha ('46) teachings would have allowed Chadha's system to optimize the query plan as suggested by Jones at col. 7, lines 52-57 and dimension reduction for data mining without the need for a domain expert as suggested by Chadha ('46) at col. 2, lines 67 to col. 3, lines 1).

With respect to claim 8,

Chadha discloses a program product for implementing a relational database system and evaluating queries directed to said relational database (see 7, lines 43-50, Fig. 3), comprising

a relational database, including a relation having a plurality of tuples including values for a plurality of attributes (see col. 4, lines 45-46 et seq), and

relational database software performing query optimization and query execution upon said relational database (see col. 3, lines 27-31), said query optimization including generating statistics for a query directed to one or more attributes of said relation, by identifying in said query a selection criterion on said one or more attributes of said

relation (see col. 5, lines 12-19), by revalidating a prior statistic generated for a prior different selection criterion on the same one or more attributes of said relation (see col. 7, lines 11-20, Fig. 2 et seq), based upon a measure of entropy of said one or more attributes of said relation, and a signal bearing media holding said relational database and relational database software (see 7, lines 43-50 and col. 9, lines 22-30, Fig. 3).

Chadha does not explicitly indicate the claimed revalidating.

Jones discloses the claimed revalidating (request is revalidated, and a query plan will be formulate. If receiver client access is authorized, the MOL received at the receiver client is transformed into a second MOL, and transferred to the receiver client, see col. 15, lines 10-15, Fig. 40, Jones).

It would have been obvious to one ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references, because the revalidating of Jones teaching would have allowed Chadha's system to optimize the query plan as suggested by Jones at col. 7, lines 52-57. Revalidating as taught by Jones improves to access the object in an object server in response to the database query, see col. 2, lines 33-35, Jones.

Chadha and Jones does not explicitly indicate the claimed entropy.

Chadha ('46) discloses the claimed entropy (rules used for data mining will appreciate that the association measures can be Chi-square, entropy, see col. 5, lines 14-15).

It would have been obvious to one ordinary skill in the data processing art at the time of the present invention to combine the teachings of the cited references, because

Art Unit: 2167

the revalidating of Jones teachings and entropy of Chadha ('46) teachings would have allowed Chadha's system to optimize the query plan as suggested by Jones at col. 7, lines 52-57 and dimension reduction for data mining without the need for a domain expert as suggested by Chadha ('46) at col. 2, lines 67 to col. 3, lines 1).

As to claim 9,

Chadha teaches wherein the signal bearing media comprises transmission media see 1, lines 6-11, Fig. 1).

As to claim 10,

Chadha teaches wherein the signal bearing media comprises recordable media see 1, lines 6-11, Figs. 1, 13).

Remarks

6. Combination of references teaches all the limitations as stated above, because

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (571) 272-4105. The examiner can normally be reached on Monday-Thursday (7:30 am-6:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mohammad Ali
Primary Examiner
Art Unit 2167

MA
May 3, 2005